

3.4 ENERGY CONSERVATION AND SUSTAINABILITY

3.4.1 INTRODUCTION

One of the key intents of CEQA is to incorporate planning early in the design phase of a project as a method to reduce negative environmental impacts. The planning process is intended to develop awareness of the fact that conventional approaches to building and development can contribute to unnecessary and excessive levels of environmental degradation, habitat destruction, and resource depletion. Moreover, it is hoped that informed design decision-making in the early phases of the project would result in land development that conserves energy and promotes sustainability.

The development of vacant land and the redevelopment of urbanized areas, by its nature, lend itself to many different types of energy conservation practices. For example, many urban redevelopment projects, or new in-fill development, encourage a mixture of types of land uses. Past studies have shown that rehabilitating urban areas, rather than building new suburbs, may consume 45 percent less energy, 50 percent less land, and create 45 percent less air pollution. However, even new development on vacant land can incorporate into its design measures that reduce energy consumption and promote principles of sustainability.

The purpose of this section of the EIR is to highlight the kinds of undesirable impacts that can result from more traditional approaches to construction and development, describe those energy conservation and sustainability measures which can be incorporated into the design of the project to reduce energy consumption and promote sustainability, and provide general mitigation measures that can ameliorate the energy resource impacts of new development on vacant, or nearly vacant, land.

3.4.2 EXISTING CONDITIONS

Project Site

The Project site is approximately 220 acres and is comprised of 22 parcels, which are currently developed with residential, agricultural and private lodge (Moose Lodge) uses. These parcels can be seen in Figure 3.7.2. The dominant uses on the project site are agricultural. Grape vineyards are the dominant agricultural use of the project site.

There are several structures located on the project site. There is a cluster of single-family homes located off Stockton Street, a road that extends south into the project site from Harney Lane. Also located on the project site (adjacent to the frontage road along State Route 99) is a Moose Lodge. Interior roads are limited to providing access to existing residences on the project site. These are one-lane roads both paved and unpaved.

Surrounding Areas

Irrigated vineyards border the project site to the west and to the south. Agricultural uses and unincorporated San Joaquin County are located further west of the project site. State Highway 99 borders the entire east side of the project site. This is a four-lane highway that is maintained by the State. Agricultural, commercial, and residential uses are located to the north. Harney Lane forms the northern boundary of much of the project site. This is a two-lane paved road that is maintained by the City of Lodi. Residential uses, agricultural uses, and unincorporated areas of the San Joaquin County are located further south of the project site.

Energy Conservation and Sustainability

Existing residential uses on the project site typically consume low levels of energy. Consumption of water, electrical energy, and natural gas is limited in nature. Also, the existing agricultural uses are not large consumers of energy (electricity or natural gas). However, agricultural uses do require substantial amounts of water to be sustained and periodically consume non-renewable resources throughout the life of the agricultural operation (diesel fuel consumption to run farming equipment, etc.). Both the existing residential and agricultural uses on the project site could be termed “sustainable” in that these uses have existed on the site for many years, have required only the use of readily available existing energy resources, and have not created a need for substantial, new, or expanded energy resources to sustain them.

3.4.3 REGULATORY FRAMEWORK

Local, State, and Federal agencies, as well as energy suppliers, routinely conduct programs to make the public aware of the need for energy conservation and sustainability. The increased and growing demands for non-renewable energy supplies is best addressed through conservation according to these programs and their requirements.

Local Energy Conservation and Sustainability Measures

The City of Lodi currently administers and implements local energy conservation and sustainability programs. They include, but are not limited to, the following:

1. The City implements a Water Conservation program that includes restricted watering schedules, education programs, and enforcement personnel.
2. Energy conservation is included in the design and construction of public infrastructure including traffic signals that are equipped with low-voltage LED lighting equipment.
3. The City requires solar assisted equipment to be furnished at all new bus shelters/stops.

4. The Lodi Electric Utility has lighting, heating, and air conditioning rebate programs when energy-conserving facilities are installed for non-residential customers.
5. Transit services in Lodi are often added in areas where new development is proposed or augmented in existing developed areas where an increase in transit ridership is anticipated.
6. The City routinely amends its Citywide Bikeway Master Plan to address the need for new or expanded bikeways in areas undergoing new development.
7. The City encourages the use of drought-tolerant landscape species in landscape plans that are submitted to the City for review and approval.

State Energy Conservation and Sustainability Measures

State CEQA Guidelines

Appendix F, Energy Conservation, of the CEQA Guidelines requires EIRs to include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy. In addition, although not described as thresholds for determining the significance of impacts, the Guidelines seek inclusion of information in the EIR addressing the following:

1. Measures to reduce wasteful, inefficient and unnecessary consumption of energy during construction, operation, and maintenance of the project;
2. The siting and orientation of buildings and structures to minimize energy consumption, including transportation energy;
3. Measures for reducing peak energy demand;
4. Incorporation of alternative fuels (particularly renewable ones) or energy systems; and
5. Incorporation of recycling of non-renewable resources.

Title 24 Energy Efficiency Standards

Title 24 energy standards, the energy efficiency standards for residential and nonresidential Buildings, were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods.

California's building efficiency standards (along with those for energy efficient appliances) have saved more than \$56 billion in electricity and natural gas costs since 1978. It is estimated the standards will save an additional \$23 billion by 2013.

The California Energy Commission recently adopted the changes to the Building Energy Efficiency Standards, to accomplish the following:

1. To respond to California's energy crisis to reduce energy bills, increase energy delivery system reliability, and contribute to an improved economic condition for the state;
2. To respond to the AB 970 (Statutes of 2000) urgency legislation to adopt and implement updated and cost-effective building energy efficiency standards;
3. To respond to the SB 5X (Statutes of 2001) urgency legislation to adopt energy efficiency building standards for outdoor lighting; and
4. To emphasize energy efficiency measures that save energy at peak periods and seasons, improve the quality of installation of energy efficiency measures, incorporate recent publicly funded building science research, and collaborate with California utilities to incorporate results of appropriate market incentives programs for specific technologies.

Currently all new residential and nonresidential buildings are required to comply to Title 24 energy conservation requirements, including the recent amendments highlighted above, to reduce energy conservation and promote sustainability.

Federal, Private, Quasi-Public Energy Conservation

A variety of Federal laws and statutes regulate the public and private use of energy resources. The Federal Energy Regulatory Commission (FERC) regulates the practices of private energy suppliers. In addition, key Federal regulatory statutes, such as the Energy Conservation Act and the National Energy Conservation Policy, includes rules and regulations seeking to conserve energy at the national distribution levels of energy resources (primarily electricity and natural gas).

Private and public purveyors of energy resources, including the Lodi Electric Utility, have established long-standing energy conservation programs to encourage consumers to adopt energy conservation habits, install energy efficient appliances in their homes, and reduce energy consumption during peak demand periods. These programs extend as well into the area of sustainability by encouraging the construction of new buildings (industrial, commercial, residential) with building materials that lower energy costs.

3.4.4 THRESHOLDS FOR DETERMINING SIGNIFICANCE OF IMPACTS

The California Environmental Quality Act (CEQA) Guidelines, Appendix F indicates “a project may be deemed to have a significant effect on energy conservation” if it:

1. Includes wasteful, inefficient, and unnecessary consumption of energy during project construction, operation, maintenance and/or removal that cannot be feasibly mitigated; or

2. Preempts future energy development or future energy conservation.

3.4.5 PROJECT IMPACTS

The California Environmental Quality Act (CEQA) Guidelines, Appendix F suggests a project be compared against the following impact criteria:

1. The project's energy requirements and its energy use efficiencies by amount and fuel type or each stage of a project's life cycle;
2. The effect of the project on local and regional energy supplies and need for additional capacity;
3. The effect of the project on peak and base period demands for electricity and other forms of energy;
4. The degree to which the project complies with existing energy standards;
5. The effects of the project on energy resources; and
6. The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

The construction of over 500,000 square feet of commercial retail and office space on the project site, as well as the development of approximately 1,000 new homes, public uses (fire station, public school, public park uses) will cause the expenditure of energy resources to build, operate, and maintain said uses. It is not anticipated that the project will cause wasteful, inefficient, or unnecessary consumption of energy during construction, operation, or maintenance. In addition, there is no evidence that the project will not conform to the criteria described above.

There are energy conservation measures, in addition to those already being administered by the City that should be considered during the processing of plans for specific projects in the project area. They include the following:

Site Planning and Street Design

1. Utility companies should utilize the same trenches as much as possible when upgrading their respective facilities in the project area to minimize the use of diesel fuel during this phase of project construction.
2. Bikeways should be provided as an alternative transportation system serving the project area.
3. If active solar heating systems are incorporated into the design of proposed and/or rehabilitated buildings, site planning must ensure that incoming solar radiation is unobstructed.

4. Provision of pedestrian amenities (e.g., street trees, improved crosswalks, etc.) could encourage greater pedestrian activity, as an alternative to driving, between the employment centers in the area and residential areas.

Building Design

1. All buildings constructed in the project area shall comply with the Energy Conservation Standards set forth in Title 24 of the California Administrative Code.
2. Orientation of the largest surface areas and the major openings of buildings toward the south will maximize solar exposure and natural heat gain during the winter months and minimize heat gain during the summer.
3. Walls, ceilings, floors, windows and hot water lines should be insulated to prevent heat loss or gain.
4. Active solar energy systems should be considered for use in heating water. Recent studies have indicated the cost-effectiveness (i.e., amortization of initial cost) of the use of solar energy for these purposes.
5. Nonessential, ornamental lighting should be avoided.
6. Low-flow or water-saving plumbing fixtures should be installed in all new and/or rehabilitated structures.
7. Utility providers in the area have “Energy Management Programs” which provide assistance in selecting the most effective application of energy conservation techniques, which should be incorporated into project design during the preliminary planning stages of development. These energy-saving alternatives are readily available, easier to install during construction, and will not necessary raise long-term costs.
8. Parking lot lighting should not exceed one foot-candle.
9. Hot season strategies should include window (and whole building) shading and nighttime ventilation. All windows should be shaded during summer, as shading will reduce summer heat gain by as much as 80 percent. Attic fans or other similar ventilation devices should be installed for use during summer months.

Landscaping

1. Appropriate and well-placed landscaping can be used to moderate building temperatures. For example, deciduous trees located on south and west exposures should be used to provide shade during summer yet allow light and heat to enter building during winter months.

2. Native and/or exotic plants that are adapted to the climate of the San Joaquin Valley area should be used exclusively in the landscaping of the proposed project area to minimize water, in turn, energy consumption.
3. Shade trees should be located along the east and west walls of structures and near paved areas.
4. All streets and parking lots should be shaded with trees, and wherever possible, unshaded ground surface should be covered with vegetation to minimize stored and reflected summer heat.

Water Conservation

1. Replace existing non-water saving toilets and/or install new ultra-low-flush toilets.
2. Water saving showerheads should be installed in all residential units.
3. Encourage the installation of high efficiency clothes washer models by residents. High efficiency clothes washers save water and energy.
4. For businesses (office and retail) teach water awareness. Many companies have posted signs throughout their facilities that help to create an awareness of water conservation among the employees.
5. Continue to encourage energy-efficient landscaping (water conserving plants, indigenous vegetation, and use of on-site water runoff) consistent with established City policy.
6. The use of low-flow irrigation facilities (low flow drip heads, sprinklers) should be incorporated into the design of landscaped areas, parks, and other facilities.
7. Reclaimed or “grey” water should be used to reduce the amount of water needed for landscaped purposes.

Transportation Conservation

1. Employers on the project site shall be required to adopt transportation management plans which includes a combination of the following:
 - a. Provide flex time and/or shifting work schedules to avoid peak traffic;
 - b. Establish carpools and vanpools;
 - c. Provide preferential and free parking for carpoolers and vanpoolers as well as ridesharing programs;
 - d. Provide shuttle services from regional transportation (e.g., rail/bus) stations to final destinations;
 - e. Provide subsidies for transit passes; and
 - f. Provide locker room facilities for employees (i.e. bicyclists).

2. Future businesses in the project should encourage the use of alternative modes of transportation including local and regional bus transit.
3. Implement and conduct on-going traffic improvements in the project area such as the synchronization of traffic signals.

The proposed project is not anticipated to result in wasteful, inefficient, or unnecessary consumption of energy during project construction, operation, or maintenance and will not preempt future energy development or future energy conservation. On the contrary, the above-described measures will be incorporated into the project's design and operation. Furthermore, the design and placement of the office facility will result in the ability of employees to walk to nearby convenience facilities (breakfast/lunch eateries and dry cleaners) and provides nearby access to a system of walking trails. The project site, moreover, is compact in nature, with office uses served in close proximity by housing and retail uses in an already urbanized setting. The project, therefore, will result in less-than-significant impacts on energy conservation and sustainability.

3.4.6 CUMULATIVE IMPACTS

The City of Lodi and surrounding region are undergoing significant growth, causing increased consumption of both renewable and nonrenewable energy resources. Multiple development projects are proposed, approved, or currently under construction in the City and region. These projects placed increased demands on the supply of limited resources such as electricity, natural gas, and water. The proposed project would contribute to this cumulative increase in consumption of energy resources by developing 220 acres of mostly agricultural (vineyards) land into mixed urban uses including single and multifamily residential, retail commercial, and office uses.

Since the increased urbanization of existing open spaces and farmland is being experienced region-wide, and because development pressures affect the entire region, the most effective mitigation is the continued implementation of the energy conservation measures outlined above and a continued commitment on the part of property owners and local governmental agencies to adopt and conduct policies and programs which seek to conserve energy resources, especially nonrenewable resources.